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Observation of Comet a 1888 (Sawerthal), made at Launceston, Tasmania. By A. B. Biggs.

Comet from Star Σ 2878. *Comet N.P.*

1888.	Greenwich Mean Time.	Diff. R.A.	Diff. N.P.D.	No. of Measures.
	d h m s	s	′ ″	
April	5 7 33 6	−55·25	−2 23·8	4 (all good).

Brightness, ∠ star.

Note.—The whole figure appeared to have assumed quite a ruddy tint as compared with its former appearance—possibly atmospheric, but I think not.

Telescope (8½-inch reflector) previously readjusted.

Observations of Comet a 1888 (Sawerthal), made at Windsor, N. S. Wales. By John Tebbutt.

The comet, the news of the discovery of which reached me on February 23, has been observed by me on every occasion when the weather permitted. It has throughout been distinctly visible to the unassisted eye, and its nucleus, till towards the close of the period of observation, was brilliant and star-like, and therefore was adapted for accurate pointing. During the last few days the nucleus was considerably elongated, but the point of greatest brightness was clearer for observation. All the positions depend on filar-micrometer comparisons. The first positions for March 7 and 14 were obtained with the 4½-inch and all the rest with the 8-inch equatorial. Fog or cloud has prevented any observation since the morning of the 3rd instant.

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Comet a 1888.

1888.	Windsor Mean Time.	Comet — Star. Δ R.A.	Comet — Star. Δ N.P.D.	Comps.	Comet's App. R.A.	Log $\frac{p}{P}$	Comet's App. N.P.D.	Log $\frac{q}{P}$	Red. to App. Place.		Comp. Star.
	h m s	m s	′ ″		h m s	−	° ′ ″	+	s	″	
Feb. 27	16 35 34	+ 0 33·93		17	20 2 10·75	8·8746			−2·00		1
27	16 35 34	− 0 5·13	+ 7 21·6	17	20 2 10·93	8·8746	134 20 28·2	9·3789	−2·01	−6·0	2
28	16 34 30	+ 2 13·81	−13 52·0	4	20 6 53·64	8·8651	132 52 32·8	9·4104	−1·95	−5·7	3
Mar. 2	16 26 47	− 0 46·42	+ 2 5·1	9	20 20 1·47	8·8401	128 24 19·1	9·5023	−1·81	−4·0	4
2	17 9 9	− 7 22·11	− 6 48·6	3	20 20 13·75	8·8138	128 21 26·3	9·3576	−1·85	−3·6	5
3	16 42 37	+15 13·61	+ 4 32·6	5	20 24 18·09	8·8234	126 52 7·3	9·4740	−1·69	−4·5	6
3	16 42 37	+ 9 53·77	− 5 31·8	5	20 24 17·93	8·8234	126 52 6·9	9·4740	−1·72	−4·2	7
4	16 35 54	+11 46·48	− 8 5·3	5	20 28 18·57	8·8187	125 21 6·2	9·5123	−1·67	−3·8	8
6	17 8 19	− 0 56·62	− 4 33·3	13	20 36 9·65	8·7818	122 15 14·2	9·4653	−1·65	−2·2	9
7	15 22 27	+ 1 7·90	− 3 5·5	7	20 39 38·31	8·8103	120 49 50·3	9·6974	−1·60	−1·9	10
7	16 43 48	+ 1 20·73	− 8 16·4	21	20 39 51·14	8·7915	120 44 39·4	9·5430	−1·60	−1·9	10
8	16 49 29	− 0 11·15	− 2 15·4	18	20 43 32·88	8·7812	119 12 14·6	9·5468	−1·57	−1·4	11
9	16 46 4	+ 3 48·90	...	9	20 47 9·81	8·7768	...	...	−1·52	...	12
9	16 46 4	+ 2 19·53	+ 0 46·1	9	20 47 9·57	8·7768	117 40 26·7	9·5688	−1·52	−1·0	13
9	16 46 4	+ 0 51·06	...	9	20 47 9·51	8·7768	...	...	−1·53	...	14
10	16 58 56	+ 8 8·05	− 3 42·3	5	20 50 45·18	8·7621	116 7 54·9	9·5600	−1·46	−0·9	15
11	17 14 58	+ 6 52·63	− 6 36·3	5	20 54 17·59	8·7434	114 35 33·8	9·5487	−1·44	−0·4	16
11	17 14 58	+ 5 34·69	...	5	20 54 17·90	8·7434	...	...	−1·44	...	17
11	17 14 58	+ 3 49·73	...	5	20 54 17·54	8·7434	...	...	−1·45	...	18

1888.	Windsor Mean Time.	Comet — Star. Δ R.A.	Comet — Star. Δ N.P.D.	Comps.	Comet's App. R.A.	Log $\frac{p}{P}$	Comet's App. N.P.D.	Log $\frac{q}{P}$	Red. to App. Place.		Comp. Star.
	h m s	m s	′ ″		h m s	−	° ′ ″	+	s	″	
Mar. 14	16 21 0	+ 6 26·13	− 9 44·0	5	21 4 26·58	8·7628	110 8 6·9	9·6604	−1·35	+0·8	19
14	17 19 48	+ 6 34·09	−13 21·2	5	21 4 34·54	8·7234	110 4 29·7	9·5896	−1·35	+0·8	19
15	17 19 18	− 3 43·17	+ 8 28·2	8	21 7 55·86	8·7194	108 35 43·4	9·6047	−1·36	+1·7	20
17	17 13 51	+ 5 1·16	+ 2 56·4	9	21 14 32·66	8·7164	105 41 9·6	9·6361	−1·28	+2·1	21
17	17 13 51	− 0 44·61	...	9	21 14 33·10	8·7164	...	...	−1·30	...	22
18	17 16 59	+ 0 38·15	...	9	21 17 50·15	8·7101	...	...	−1·27	...	23
18	17 16 59	− 3 24·47	+10 38·8	9	21 17 49·98	8·7101	104 15 4·3	9·6447	−1·28	+2·9	24
19	17 31 54	+ 0 49·03	+14 59·1	9	21 21 7·85	8·6913	102 49 19·3	9·6464	−1·24	+3·1	25
21	16 57 11	− 0 2·45	− 4 0·8	5	21 27 31·69	8·7184	100 5 23·5	9·6874	−1·21	+3·7	26
21	17 27 3	+ 2 1·73	−10 20·4	6	21 27 35·84	8·6909	100 3 40·6	9·6720	−1·20	+3·7	27
25	17 35 58	− 0 8·27	+ 8 49·1	13	21 40 22·62	8·6721	94 47 33·8	9·7084	−1·13	+5·1	28
28	17 31 52	+ 5 20·67	− 1 42·9	4	21 49 49·05	8·6593	91 5 59·7	9·7333	−1·06	+5·8	29
29	17 34 32	+ 0 48·44	− 1 8·5	6	21 52 56·55	8·6683	89 54 56·0	9·7412	−1·06	+6·2	30
29	17 34 32	− 2 23·55	− 1 4·6	6	21 52 56·48	8·6683	89 55 0·5	9·7412	−1·07	+6·2	31
31	17 38 38	− 4 17·68	−11 27·3	5	21 59 9·23	8·6614	87 37 29·6	9·7555	−1·05	+6·8	32
Apr. 1	17 38 25	− 0 57·91	+12 21·3	7	22 2 14·25	8·6610	86 31 7·9	9·7621	−1·02	+7·0	33
1	17 38 25	− 2 5·42	...	7	22 2 13·85	8·6610	...	...	−1·03	...	34
2	17 40 30	+ 5 17·64	− 3 19·1	3	22 5 18·45	8·6577	85 26 8·7	9·7687	−0·99	+7·1	35
2	17 40 30	+ 4 24·02	...	3	22 5 18·11	8·6577	...	...	−0·99	...	36

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Adopted Mean Places of the Stars of Comparison for 1888·0.

Comp. Star.	Mean R.A.			Mean N.P.D.			Authority.
	h	m	s	°	′	″	
1	20	1	38·82	134	14	28·6	Stone 10799.
2	20	2	18·07	134	13	12·6	Stone 10803.
3	20	4	41·78	133	6	30·5	Stone 10820.
4	20	20	49·7	128	22	18	Anonymous = 8 mag. (Approx. position)
5	20	27	37·71	128	28	18·5	Stone 10965.
6	20	9	6·17	126	47	39·2	Stone 10840.
7	20	14	25·88	126	57	42·9	Cordoba Zone, 22·55.
8	20	16	33·76	125	29	15·3	Stone 10897.
9	20	37	7·92	122	19	49·7	Stone 11038.
10	20	38	32·01	120	52	57·7	Stone 11047.
11	20	43	45·60	119	14	31·4	Wash. Mural. Cir. Zone 132·73.
12	20	43	22·43	117	46	53·3	Stone 11075.
13	20	44	51·56	117	39	41·6	Stone 11088.
14	20	46	19·98	117	35	16·9	Cordoba Zone 10·104.
15	20	42	38·59	116	11	38·1	Stone 11072.
16	20	47	26·40	114	42	10·5	Stone 11116.
17	20	48	44·65	114	39	33·9	Cordoba Zone 32·36.
18	20	50	29·26	114	37	25·9	Arg.-Oeltzen 20973.
19	20	58	1·80	110	17	50·1	Stone 11187.
20	21	11	40·39	108	27	13·5	Greenw. 7 Yr. Cat. 1864, 2411.
21	21	9	32·78	105	38	11·1	Stone 11276.
22	21	15	19·01	105	37	48·1	Arg.-Oeltzen 21323.
23	21	17	13·27	103	59	31·7	Lamont$_5$ 3612.
24	21	21	15·73	104	4	22·6	Schjellerup 8679–80.
25	21	20	20·06	102	34	17·1	Lamont$_5$ 3630.
26	21	27	35·35	100	9	20·6	Lamont$_5$ 3676.
27	21	25	35·31	100	13	57·3	Lamont$_5$ 3666.
28	21	40	32·02	94	38	39·6	Lamont$_3$ 4381.
29	21	44	29·44	91	7	36·8	Glasgow, 5594.
30	21	52	9·17	89	55	58·3	Glasgow, 5639.
31	21	55	21·10	89	55	58·9	Glasgow, 5660.
32	22	3	27·96	87	48	50·1	Glasgow, 5705.
33	22	3	13·18	86	18	39·6	Glasgow, 5703.
34	22	4	20·30	86	26	49·9	Lalande 43221.
35	22	0	1·80	85	29	20·7	Glasgow, 5683.
36	22	0	55·08	85	21	1·1	Schjellerup 9018.

Private Observatory, Windsor, N. S. Wales:
1888, *April* 12.

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Note on Comet a 1888 (*Sawerthal*). By L. Becker, Ph.D.

(*Communicated by Dr. Copeland.*)

Along with micrometrical observations of Comet *Sawerthal* with the 15-inch equatorial I have made the following notes on its physical appearance. On May 10 the brightness of the comet was compared in an illuminated field with ⁎9·4 mag. DM. + 31°, 4984 and ⁎8·8 mag. DM. + 31°, 4982, and found to be of 9·5 mag. It was an easy object for micrometrical measurement. On May 17·6 the comet appeared in feeble reddish field illumination like a bright, pretty large nebula, hardly brighter in the middle. The north preceding tail was traced for about a minute of arc in rather strong twilight.

On May 21·5 the remarkable change in the appearance of the comet was first noticed. The nucleus was a well-defined object of a few seconds diameter, from which the matter of the comet appeared to flow out towards the north and south preceding sides, falling over in parabolic curves equally to the north and south. The coma was bounded on the preceding side by two curves of less curvature, extending from the nucleus to the north and south. Both parts of the coma appeared of the same size and their light of equal intensity. There was no trace of the tail on the preceding side seen on May 17. A tangent to the following outline of both parts of the coma was found to be in position angle 0°·8. The distance from the north to the south end of the coma was measured = 57″·0 and 59″·5, both wires of the micrometer being moved in order to obtain unbiassed measures free from zero error. In bright field illumination the *nucleus* was estimated 0·1 mag. fainter than ⁎9·0 mag., DM. 36°, 14, or = 9·1 mag.

On May 23·6 the position-angle of the tangent to the following boundary of the coma was again measured = 5°·8, 5°·2, 4°·9. The distance of the nucleus from this tangent was measured twice, both wires being altered; it was found = 16″·3 and 16″·5. In bright field illumination the nucleus appeared 0·3 to 0·5 mag. fainter than ⁎8·7 mag. DM. + 36°, 25, therefore *nucleus* = 9·1. Compared with May 21 the coma did not seem to have changed in form but was not so well defined, perhaps on account of the bad state of the atmosphere.

On March 24 it cleared up about 14^{h}, but owing to the increasing twilight[*] only a micrometrical connection with a neighbouring star could be secured. The *nucleus* was larger than previously, and appeared decidedly brighter that ⁎9·2 mag. DM. 37°, 39. Since then the sky has been overcast. It may

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[*] With regard to the brightness of the summer twilight, it may be mentioned that in the latitude of Dun Echt (+57° 10′) a short-sighted person can read the preface to the *Nautical Almanac* by the light of the northern sky at midnight on June 21.